

(8 Bit ASCII graphics use code page 437 or 850, Terminal Font)

A diagram showing a 2D grid with two highlighted cells. The grid is represented by a large rectangle with a dashed border. Inside, there are two smaller rectangles, each containing a single cell. The first cell is highlighted with a solid border and contains a small black dot. The second cell is also highlighted with a solid border and contains a small black dot. Below the grid, there are two rows of text. The first row has the word "Function" under the first cell and "Distort" under the second cell. The second row has "[] [] [] []" under the first cell and "[] [] [] []" under the second cell. To the left of the first row of text is a small circle, and to the right of the second row of text is a small circle. Below the second row of text, there is a row of text consisting of two groups of four brackets: "[] [] [] [] [] [] [] []". To the left of this row is a small circle, and to the right is a small circle with a tilde symbol (~) next to it.

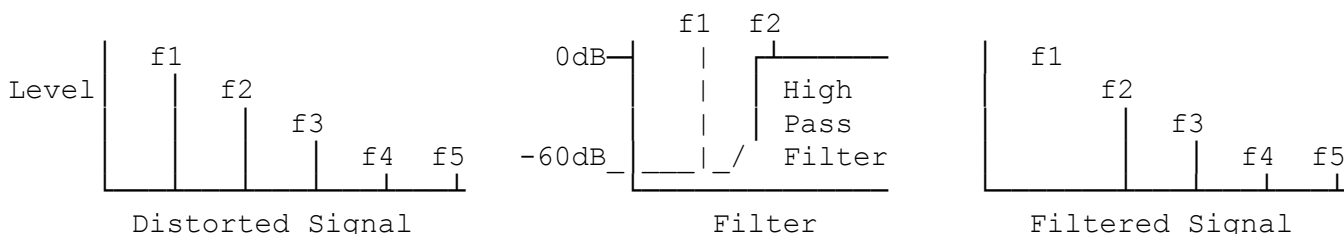
In	Level	Range	Mains
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The block diagram illustrates the internal components of the Level Detector and Distortion Meter. The signal path begins with an 'In' terminal, which feeds into a 'Level Atten' (attenuator) block. The output of the attenuator goes to an 'Input Amp' (amplifier) block. Following the amplifier, the signal is split into two parallel paths. The upper path consists of a 'Level Det 1' (detector) block, which outputs a 'DC' signal to a 'LEVEL METER'. The lower path consists of two high-pass filter blocks in series: a '400Hz HPF' followed by a '1kHz HPF'. The output of the 1kHz HPF is connected to the 'Set Gain Amp' block. The output of the 'Set Gain Amp' is connected to a 'Level Det 2' block, which also outputs a 'DC' signal to the 'LEVEL METER'. Additionally, the output of the 'Set Gain Amp' is connected to a 'DISTORTION 2 COIL METER'. The 'Set Gain Amp' block has an 'External' input terminal and a 'Dist Range' control terminal, which is connected to a potentiometer symbol.

It just uses simple RC transistor Amps & bridge diodes for the electronics. The notches are sealed LC high Q units. (M derived?)

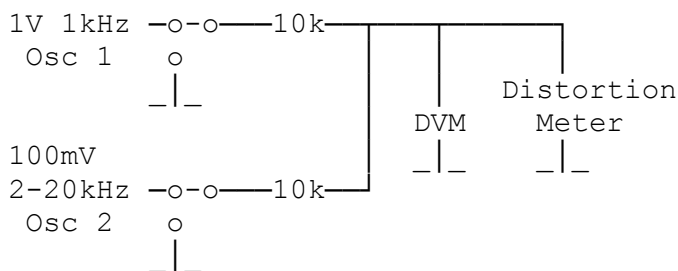
There are only 3 presets:- Level gain, Distortion gain, & input amp Bias.

DISTORTION MEASURING PRINCIPLES

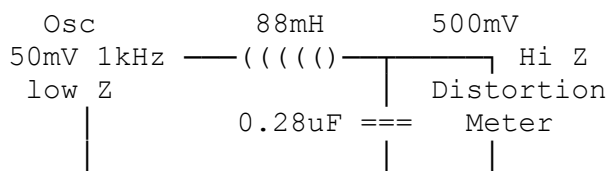


The high pass filter must completely remove the fundamental & all LF hums etc. but leave all the harmonics intact. The detectors (especially the distortion one) should be a true RMS type, as the waveform will generally be very complex & nothing like a sine wave. The ratio of f_1 to all the harmonics f_2++ is the distortion factor.

Calibration is done by adding in a 2nd tone (e.g. 3-10x freq) via high value R_s at say 10% of the level to indicate 10% distortion. The distortion meter bandwidth can also be checked with this circuit.



To check the HPF filter is working OK a very pure sine wave is needed, so an LC tuned circuit after a signal generator is used. But I did find that $> 0.5V$ @ resonance on the meter did make the inductor distortion rise $> 0.01\%$!



MODERN ANSWER

Of course with a good quality PC sound card & a Furrier analysis program that can add up the harmonics distortion measurement should be easy.

See my bul "Marconi 2331A Distortion Factor" & "Simple 1kHz AF osc".

Why don't U send an interesting bul?

73 de John, G8MNY @ GB7CIP

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